TCT SOLAR

An Overview of Solar Thermal Systems For

And

THE PRESERVATION RESOURCE CENTER OF NEW ORLEANS

January 24, 2007

Corporate overview

- Jacksonville, Florida based Corporation. Incorporated in 1979, TCT is America's oldest manufacture of solar thermal systems.

- PROGRESSIVTUBE® systems were introduced in 1984. Twenty years later and thousands of successful installations worldwide, ProgressivTube® systems have earned a reputation of excellent reliability and high performance.

Solar Water Heating Types

Active Systems

Advantages

High Efficiency

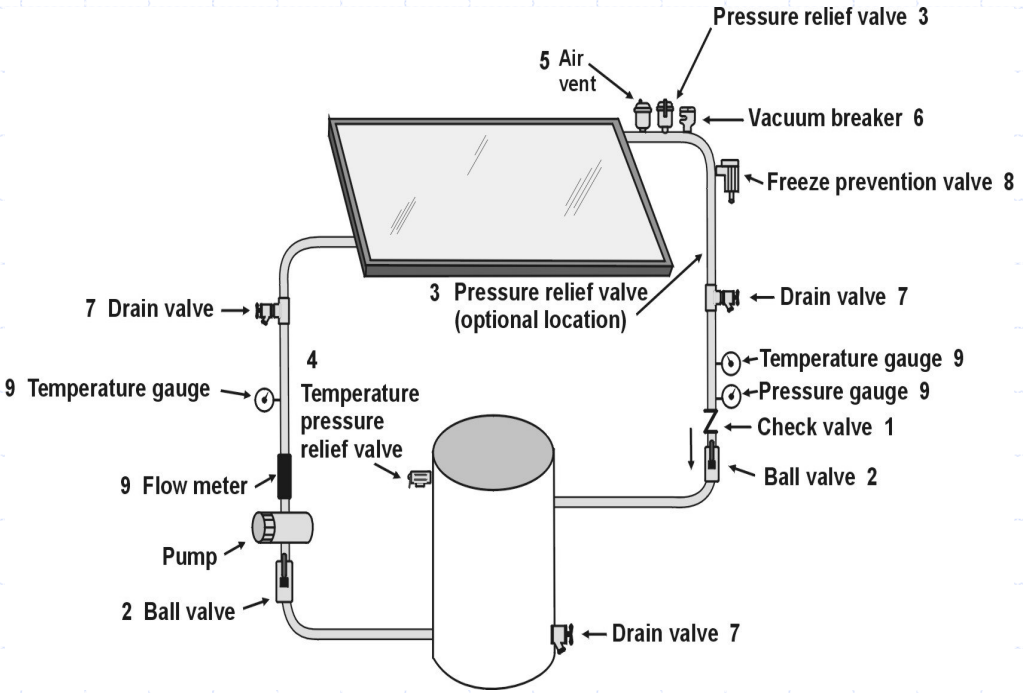
Utilize pumps to circulate fluid from solar panel to storage tank.

Versatile Mounting

Disadvantages

O&M Cost

Large 80 – 120 gal. storage tank

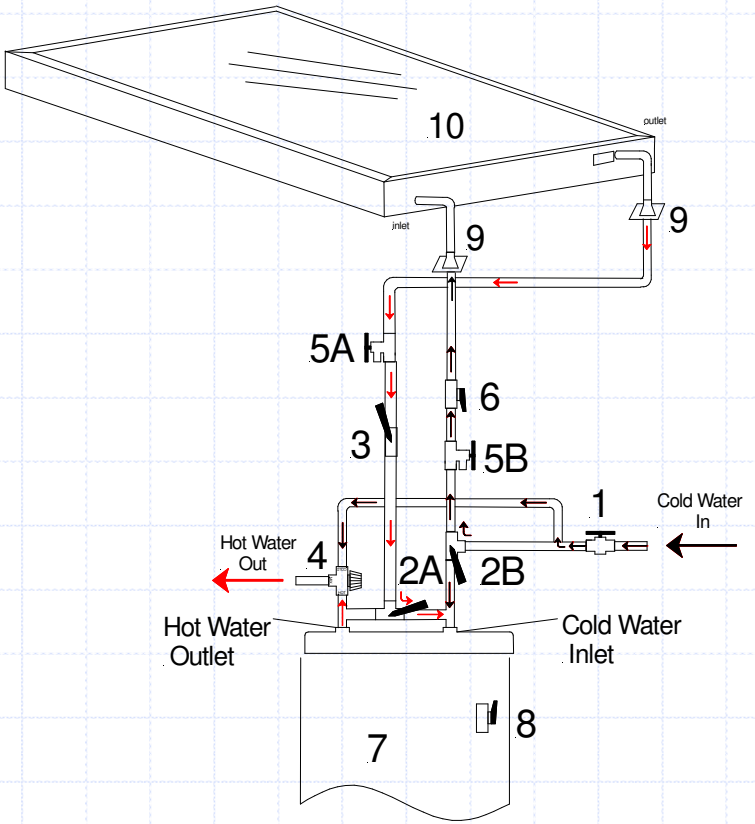


Solar Water Heating Types

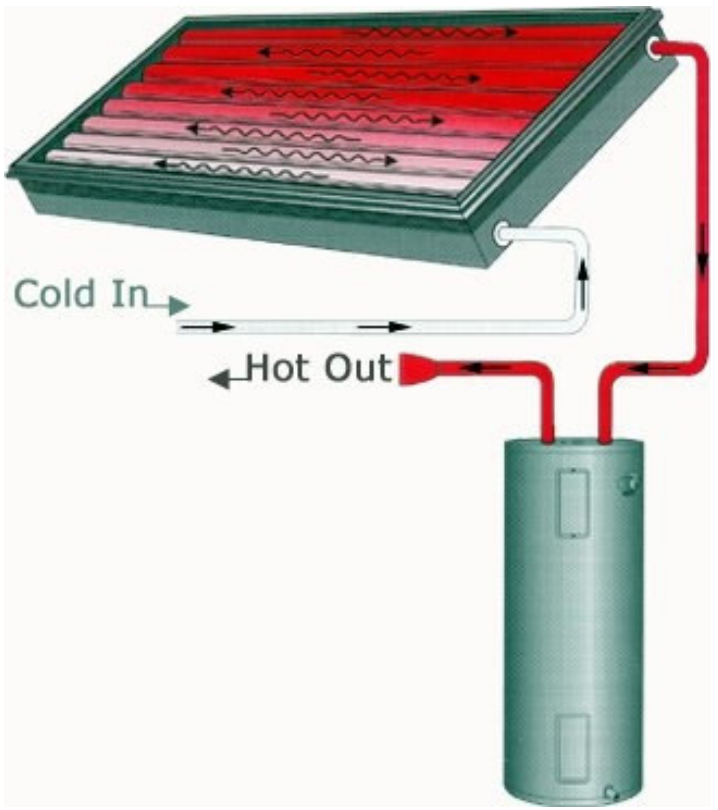
TCT SOLAR

Passive Systems

- Pre heater to thermal loads
- No mechanical or electronic controls necessary.
- No / Low Maintenance



Passive Solar Water Heaters



PROGRESSIVTUBE® systems are Integral Collection Storage (ICS) passive solar heaters.

No pumps, electronic controls, mechanical components are required to operate.

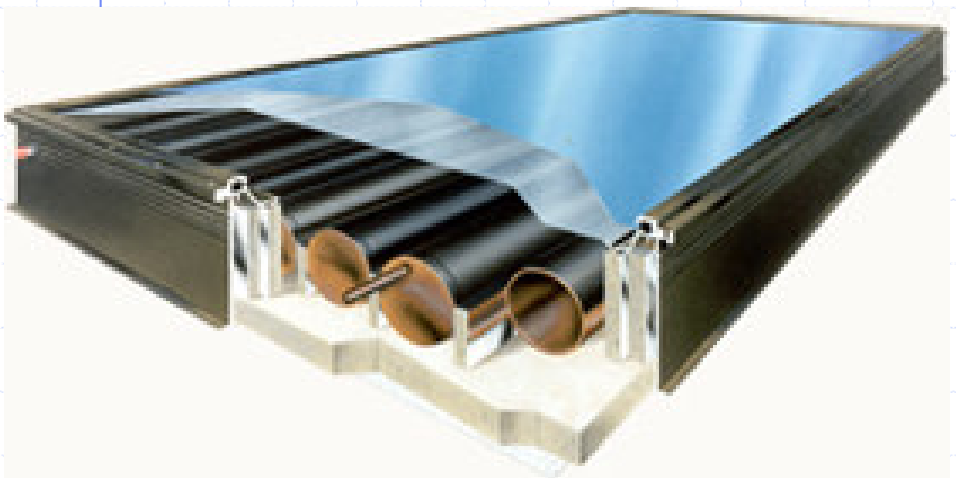
No maintenance required.

Available in 20, 30, 40, 50 gallon models.

Operates as a preheater, primary, or direct system.

Easily to manifold supplying loads of 4000 + gallons / day

PROGRESSIVTUBE®



Tested and certified meeting or exceeding all USA code requirements including:

- **Florida Solar Energy Center (FSEC)**
- **Solar Rating and Certification Corporation (SRCC)**
- **International Association of Mechanical and Plumbing Officials (IAMPO)**
- **US Department of Housing and Urban Development (HUD)**
- **Miami / Dade County product approval, 180 mph wind loading**

PROGRESSIVTUBE® Materials

The all copper collector/storage tank of a PROGRESSIVTUBE® unit absorbs solar radiation through its selective surface coating which raises the temperature of the water store in the collector. It is well insulated with closed cell foam rigid insulation. Double glazing is standard for increased heat retention, reduced overnight heat loss.

The 4" diameter copper tubes are welded into a series flow pattern so that the top of the lower tube feeds the bottom of the next tube. This allows the PROGRESSIVTUBE® unit to contain the colder replacement water in the lower tubes where it is heated by the sun as it flows from one tube to the next. Each time hot water is used, the PROGRESSIVTUBE® innovative design eliminates the cooling down of the remaining heated water that normally occurs in other types of solar water systems.

Large ¾" and 4" diameter internal flow passages within the absorber design eliminates the potential of clogging from hard water supplies.

Suppliers are ISO compliant

Residential Applications

New Construction opportunities

- Simplified, fast installation to specified water heater.
  - SunBuilt Marketing and Sales and Program
  - Build a "Green", environmentally friendly image.
  - Differentiate your homes from your competition
  - Compatible with all conventional water heaters, gas or electric including on demand / instantaneous water heaters and homes with recirculation loops

Residential Applications

Retrofit opportunities

- **Simple connection to any water heater. Reduces "engineering" in the home**
- **Simplified consumer understanding and acceptance when compared to more complimented active systems**
- **Roof or ground mount options**

Residential Applications

Retrofit opportunities-

Low income programs

- **Proven in hundreds of installations throughout Florida.**
- **Excellent performance**
- **Low first cost**
- **No maintenance required**
- **No homeowner intervention required**

Commercial Applications

Police Memorial Building

Jacksonville, Florida

Commissioned April 2004

500 gallon service hot water supplying locker rooms, laundry, and food service

Commercial Applications

US Coast Guard

San Juan, Puerto Rico

Commissioned August 2006

1,050 gallon system supplying 2,500 gal / day service hot water, 1,000,000 + BTU / Day

Commercial Applications

Florida National Guard

Camp Blanding, Florida

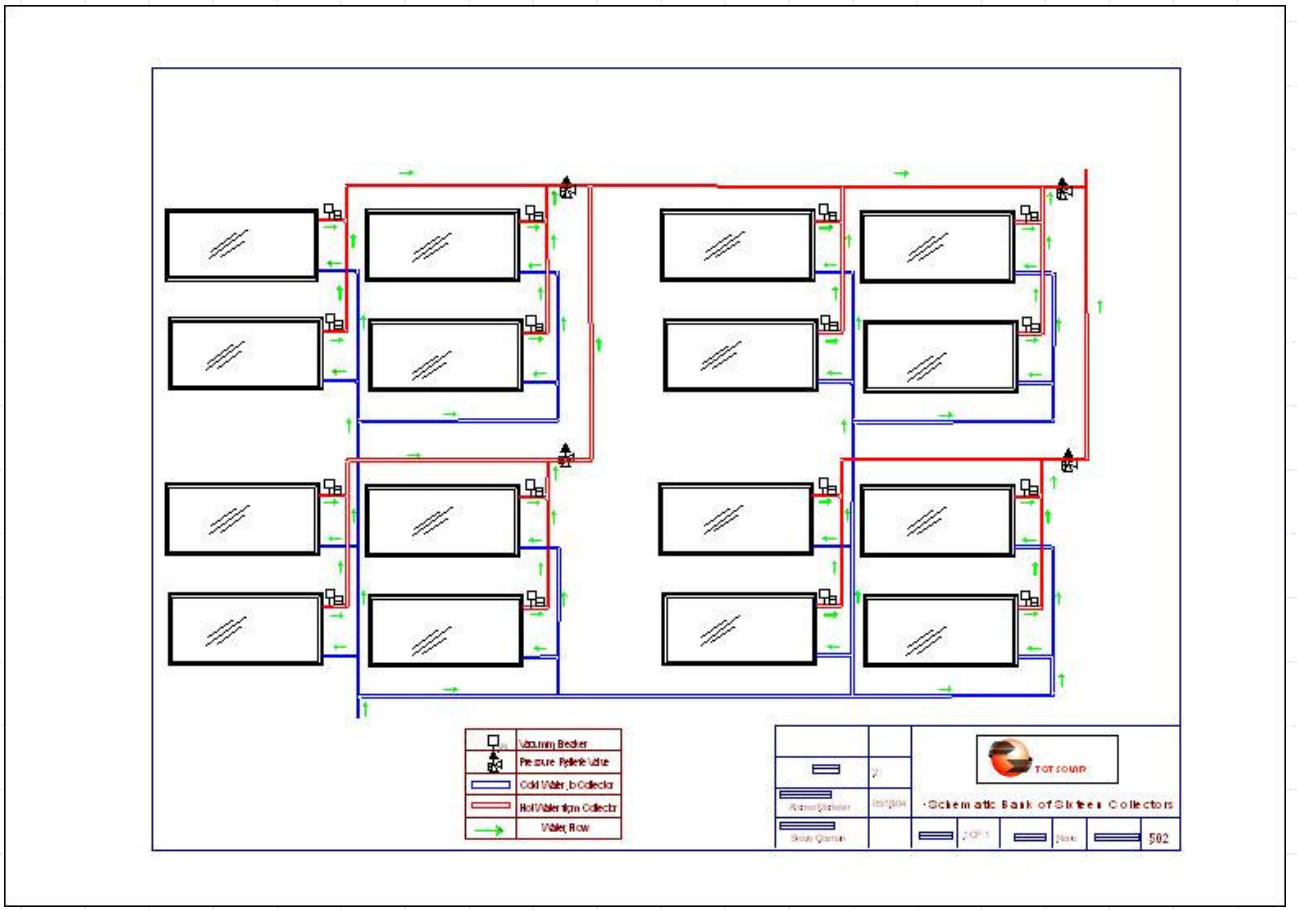
Commissioned August 2003

500 gallon service hot water supplying Bachelors Officers Quarters lodging & laundry.

Design & engineering by TCT

Monitoring by FNG indicated system reduced daily kWh consumption from 68 kWh/day to 5 kWh / day

Commercial Systems



PROGRESSIVTUBE®
Solar Thermal Systems

Commercial Mounting System

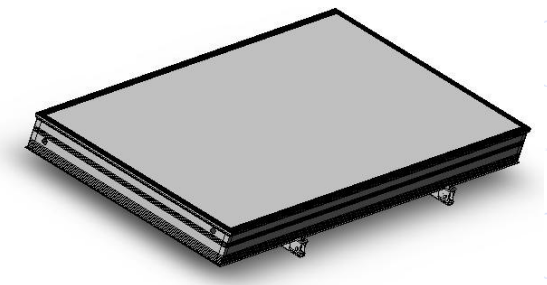
PROGRESSIVTUBE® commercial mounting systems(CMS) allow for up to 21 PT 50 collectors quickly and easily ground or roof mounted.

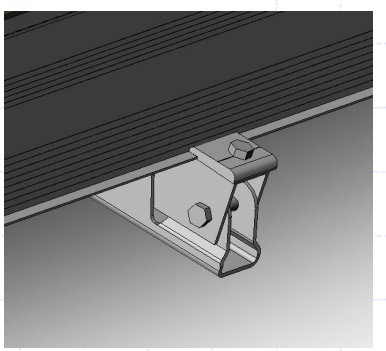
The CMS offers excellent power density and simplifies commercial installation.

CMS are wind loaded to 145 mph. Higher wind loading available.

Integrated Mounting Hardware

TCT supplied mounting hardware to meet most any installation requirement. All mounting hardware meets or exceeds Florida building code. Tested / certified to 180 mph.





RAPID DEPLOY®

Applications include-

Rapid Deploy is a stand alone water heating system for

24 / 7 operation wherever conventional water heating is

unavailable.

Typical Applications Include:

- Mobile hospital / clinics
- Mobile food service facilities
- Temporary rest room / shower facilities
- Temporary Housing
- Disaster relief shelters
- Special Events
- Parks and campgrounds
- FMEA field offices
- US DOD

Why Choose PROGRESSIVTUBE®?

Purchase Considerations Include-

- Kwh Savings
- Demand reduction
- Economic Development – jobs
- Environmentally Friendly MFR
- Ability to generate and bill for solar thermal energy
- Carbon Credits / REC's
- Mitigated Risk

Why choose PROGRESSIVTUBE®

- 25 year design life
- No operating expense
- Simple connection to existing water heaters and boilers
- No maintenance
- Plumbing / mechanical contractor friendly installation
- TCT supplied feasibility studies & engineering support services

Solar Water Heater Economics- Residential

TCT SOLAR

Installed Cost:	$3,000
Federal 30% Tax Credit:	$ 900
Net Cost After Incentive:	$2,100
System kWh delivery:	6 kWh / day
Utility Rate:	$.11 kWh

No future utility rate increases considered.

Monthly Savings:	$21.00
Annual Savings:	$ 240
Added Monthly Mortgage Payment @ 6.& 6.75:	$18.00 / $19.47

Positive cash flow from date of occupancy

Solar Water Heater Economics- Commercial 1,200 – 1,700 gal/day

Assume 700 ft sq system

Installed Cost:	$125.00 ft sq = $85,000
Federal 30% Tax Credit:	$ 25,000
State Incentive:	N/A
Utility Incentive:	N/A
Five Year depreciation:	?
System kWh delivery:	126 kWh / day
Utility Rate:	$.08 kWh*
Monthly Savings:	$300.00
Annual Savings:	$3,600.00
Typical Commercial ROI	20% – 35%+

*No future utility rate increases considered. :

Solar Water Heater Economics- Commercial 1,200 – 1,700 gal/day

Commercial Financing Options:

- Lease: 10- 12 term private sector 15 – 17 years state, a municipal, Not For Profit No out of pocket cost, positive cash flow from day of commissioning
- Sale of Energy: Only pay for energy delivered- No risk

Incentives Currently Available in New Orleans

- State Incentives:
- Local Incentives:
- Utility Incentives:
- Building Code Incentives:
- Federal Incentives: Yes, Residential & Commercial

What Constitutes a Successful Incentive Program?

- Sustained multiyear effort, 8 – 10 years
- Adequate budget
- All interested parties must have clear mutually agreed goals and objectives
- Political will

Thank You

Steve Gorman

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